



# **Mechanism and mitigation of earth fissure in China**

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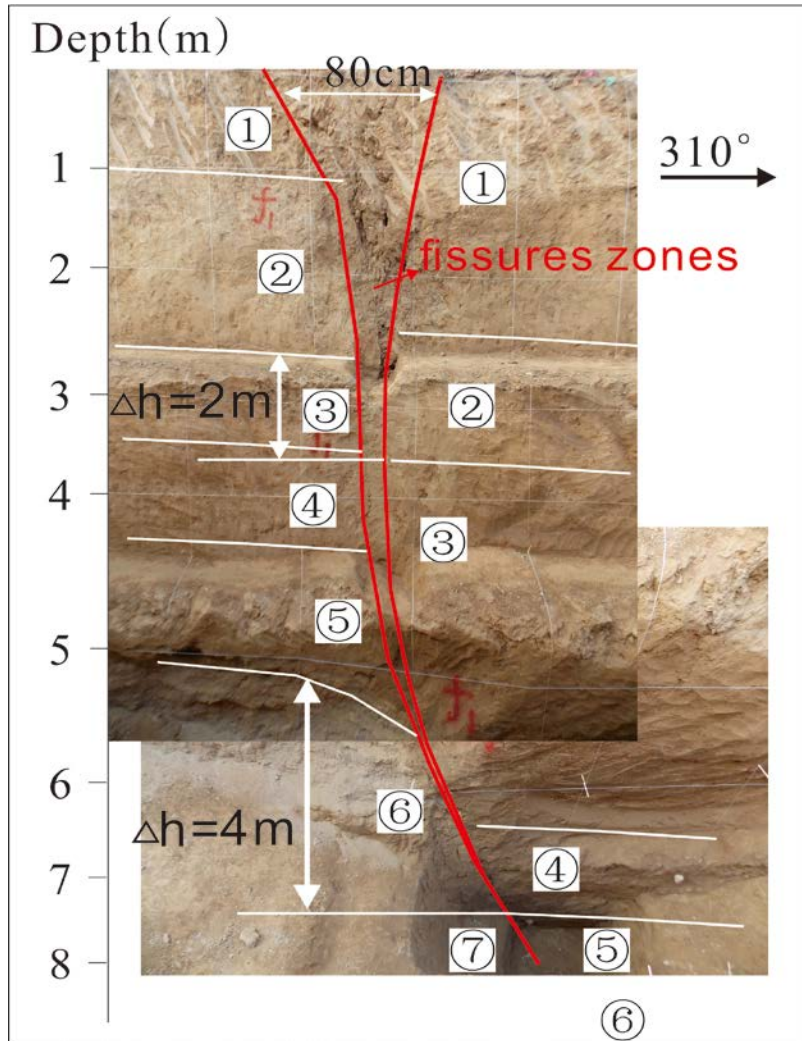
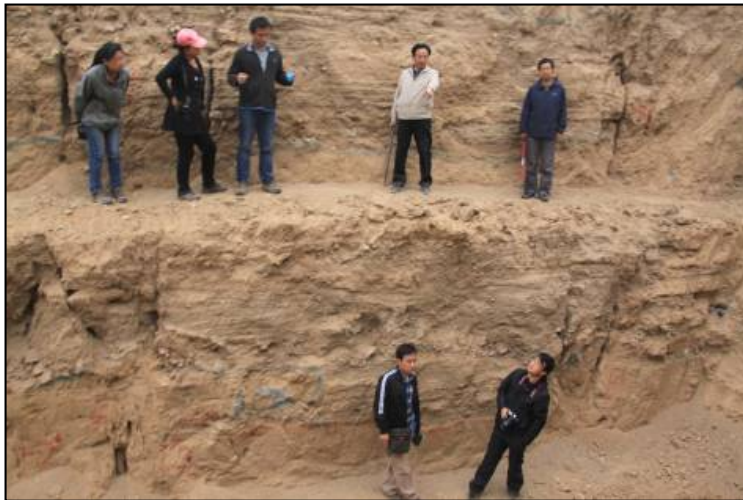
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**April. 2017**

2. The profile structures of earth fissure are revealed by Geological and geophysical methods.

# Main achievement

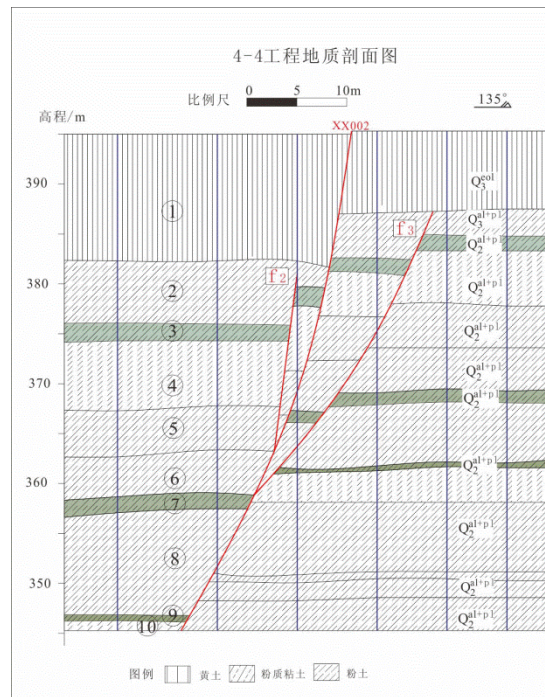
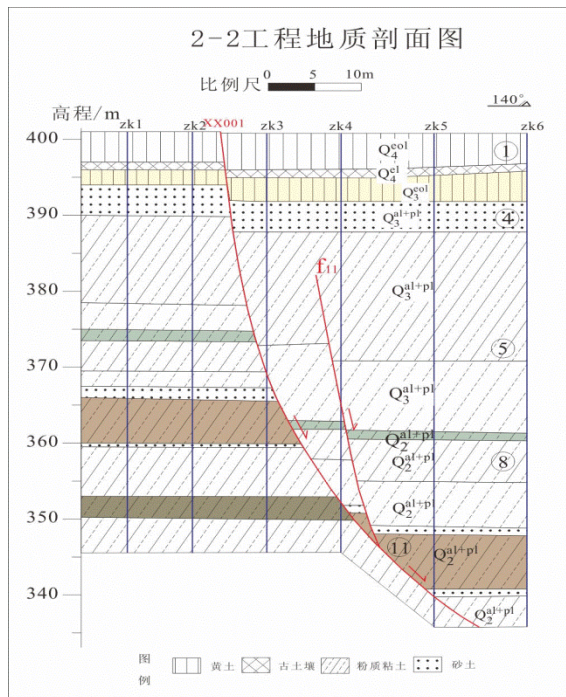
The shallow structures of fissures are revealed by trenching





# Main achievement

The relationship between earth fissures and buried faults are revealed by geological drilling





# Main achievement

The deep profile structures are revealed by seismic exploration

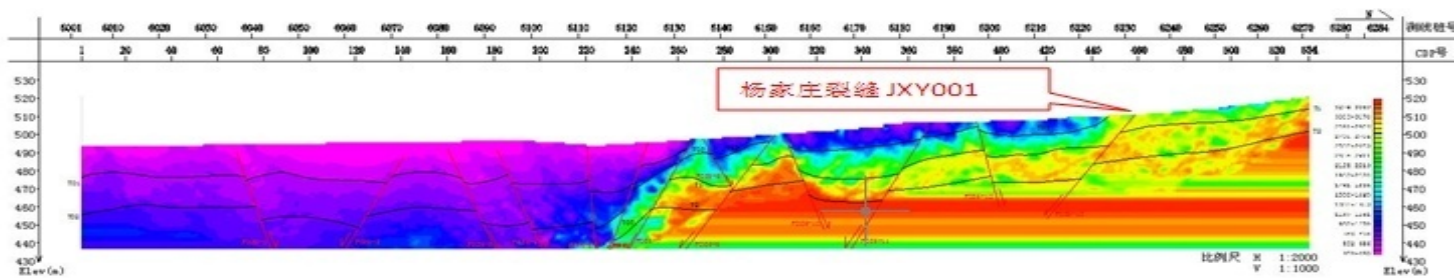


图 6.68 (a) 稷县杨家庄地裂缝测线 DZ7 线初至折射速度层析反演剖面

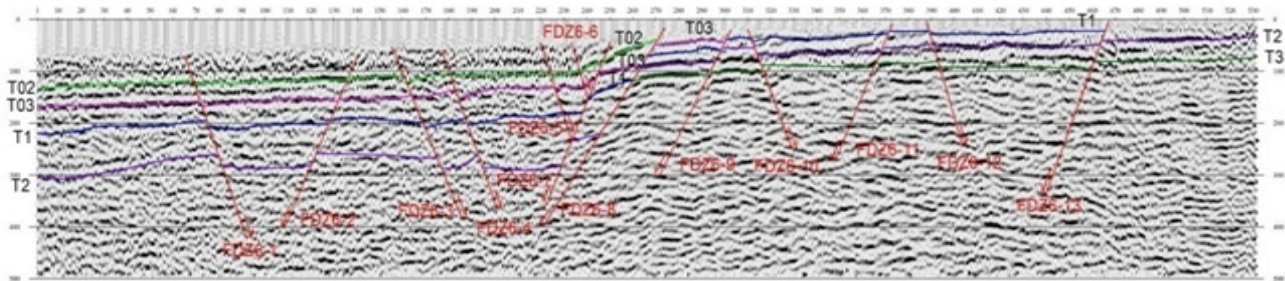
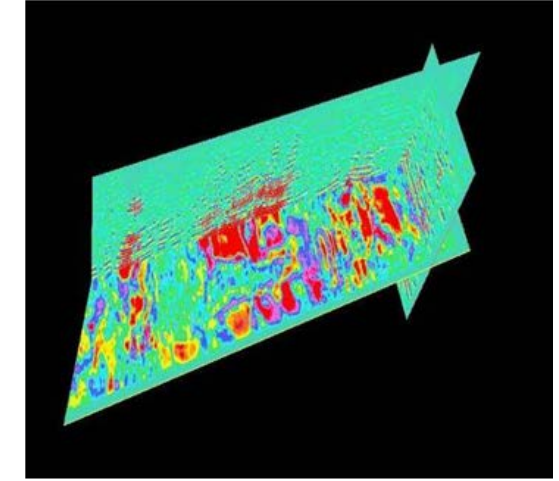
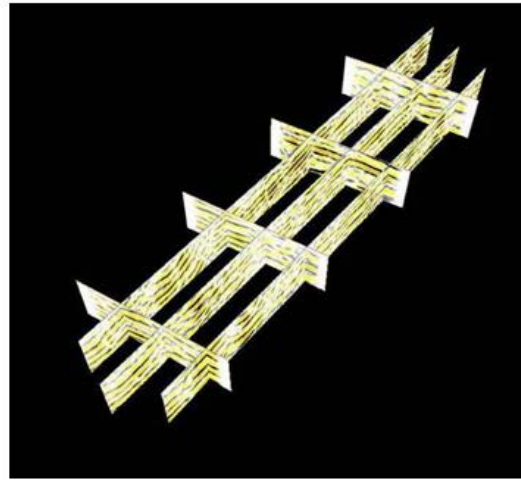
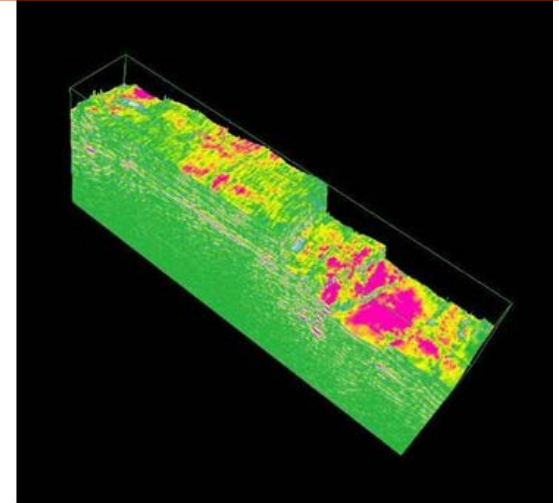
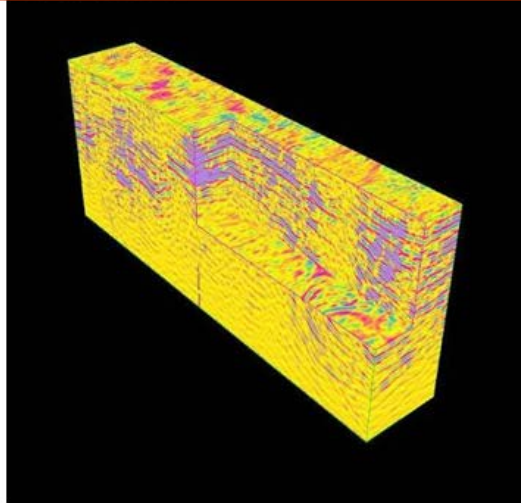


图 6.68 (b) 稷县杨家庄地裂缝测线 DZ7 线水平叠加时间剖面图

# Main achievement

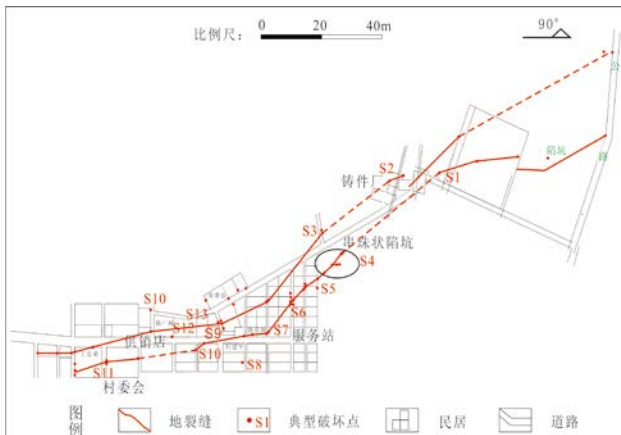
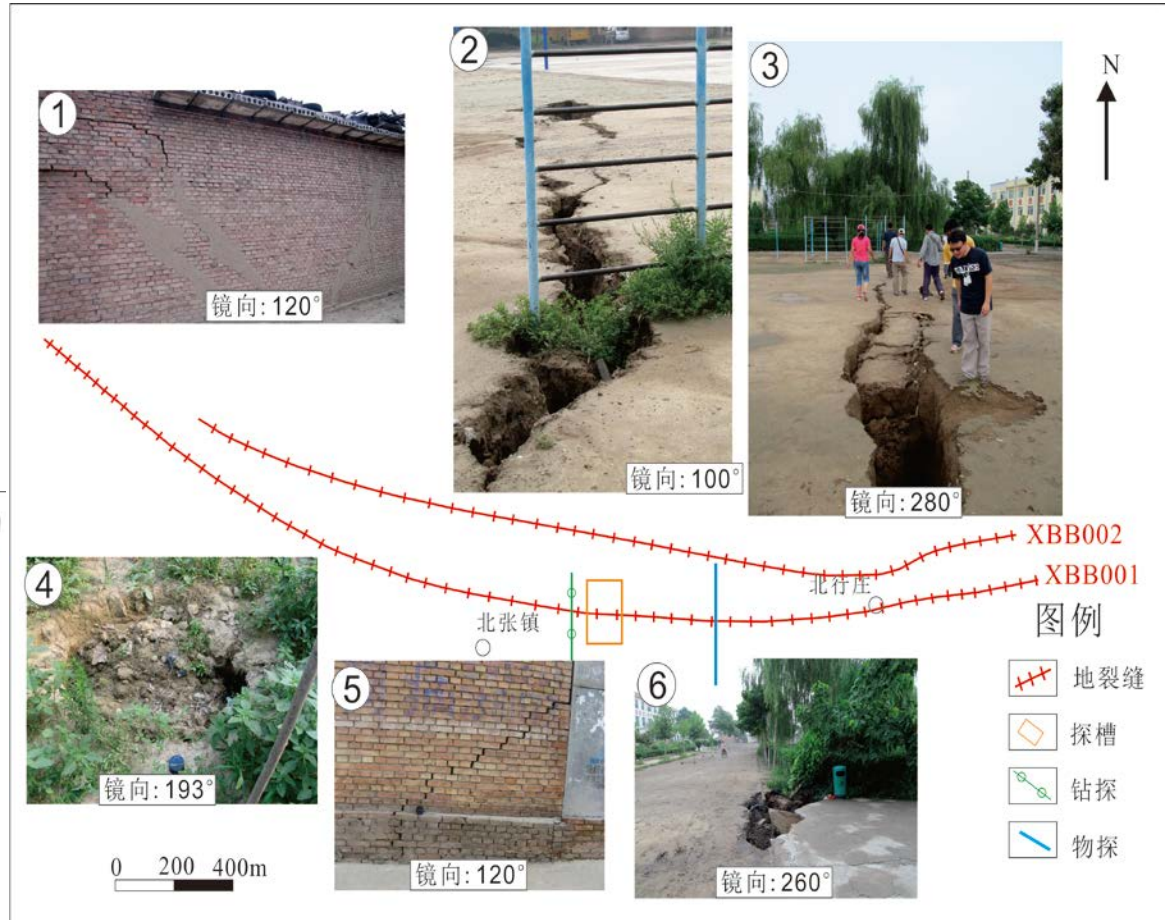
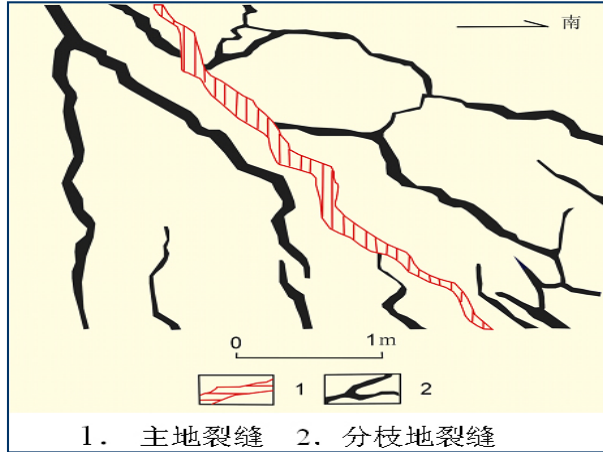
The relationship between typical earth fissure and deep structure is revealed by 3-D seismic exploration





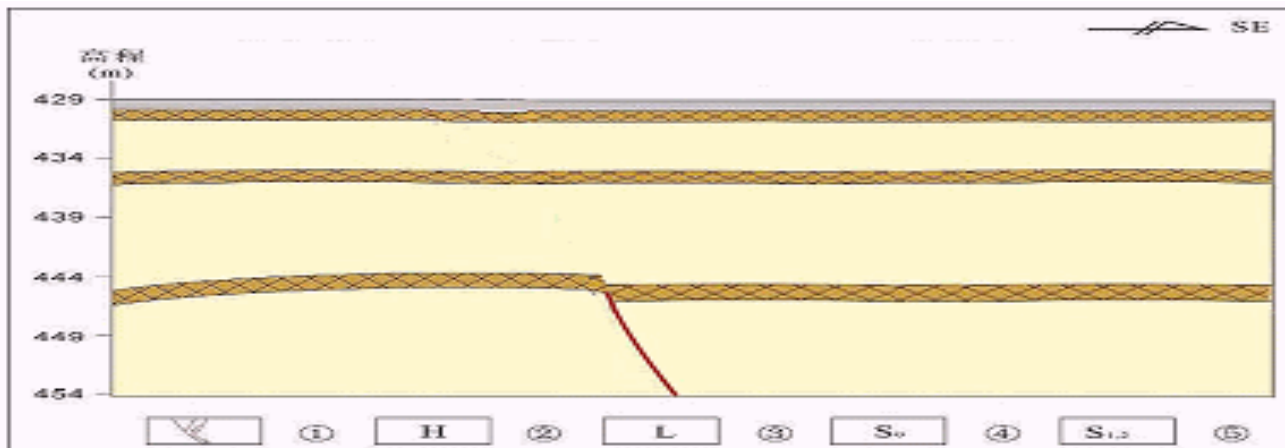
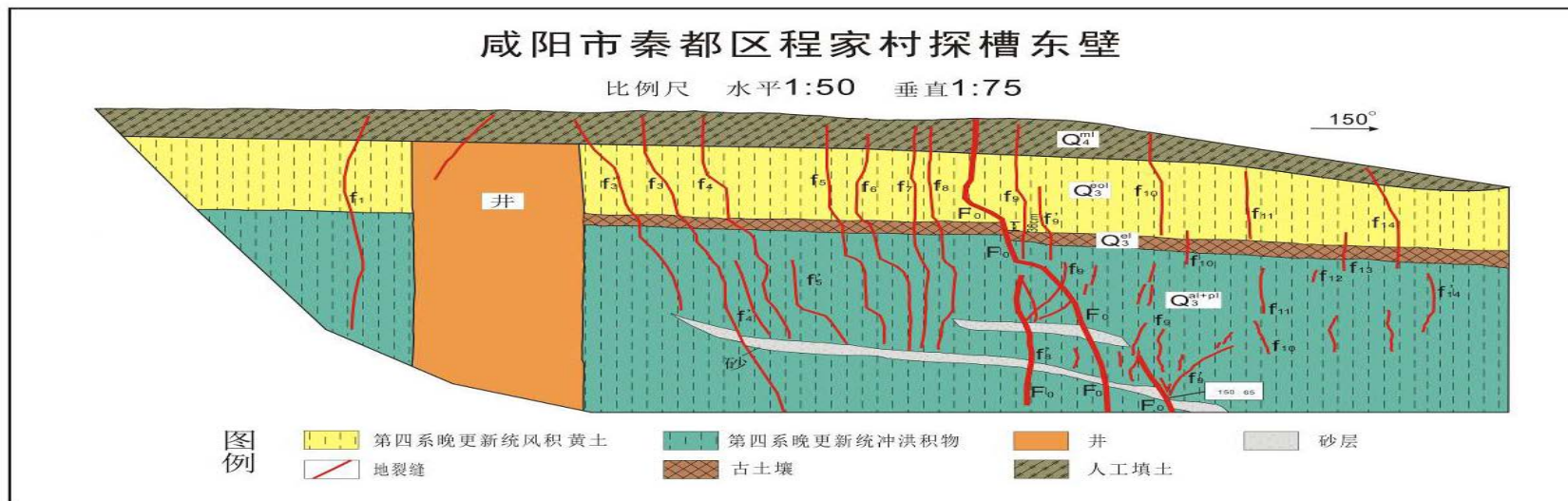
# Main achievement

## Planar distribution: en-echelon



# Main achievement

**Shallow cross-section: the main fissure and secondary fissure compose fracture zone**

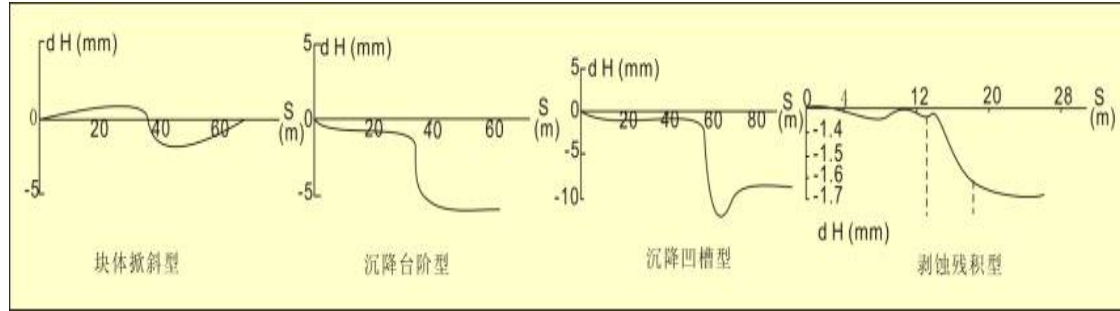




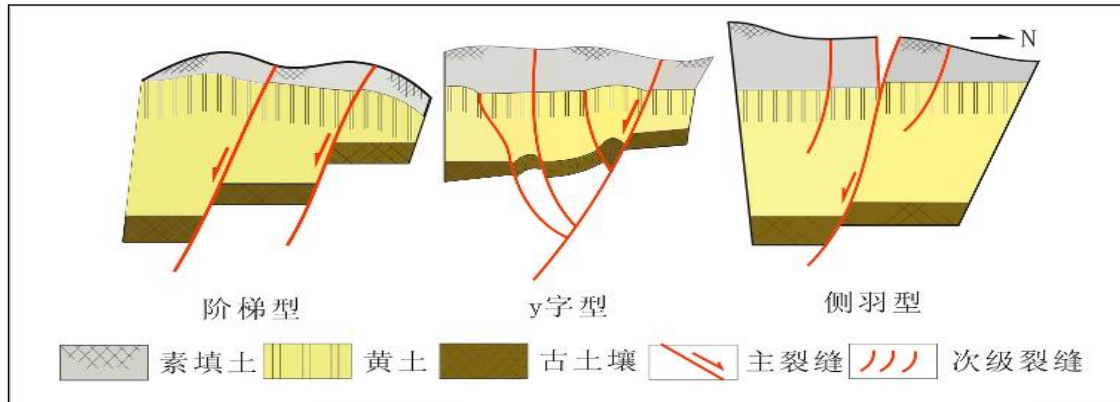
# Main achievement

## Vertical feature

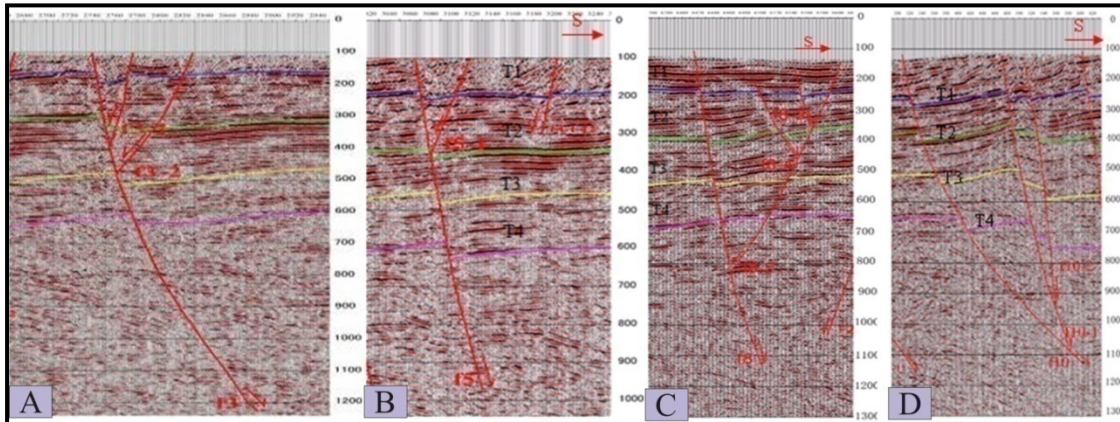
Earth surface



Shallow:

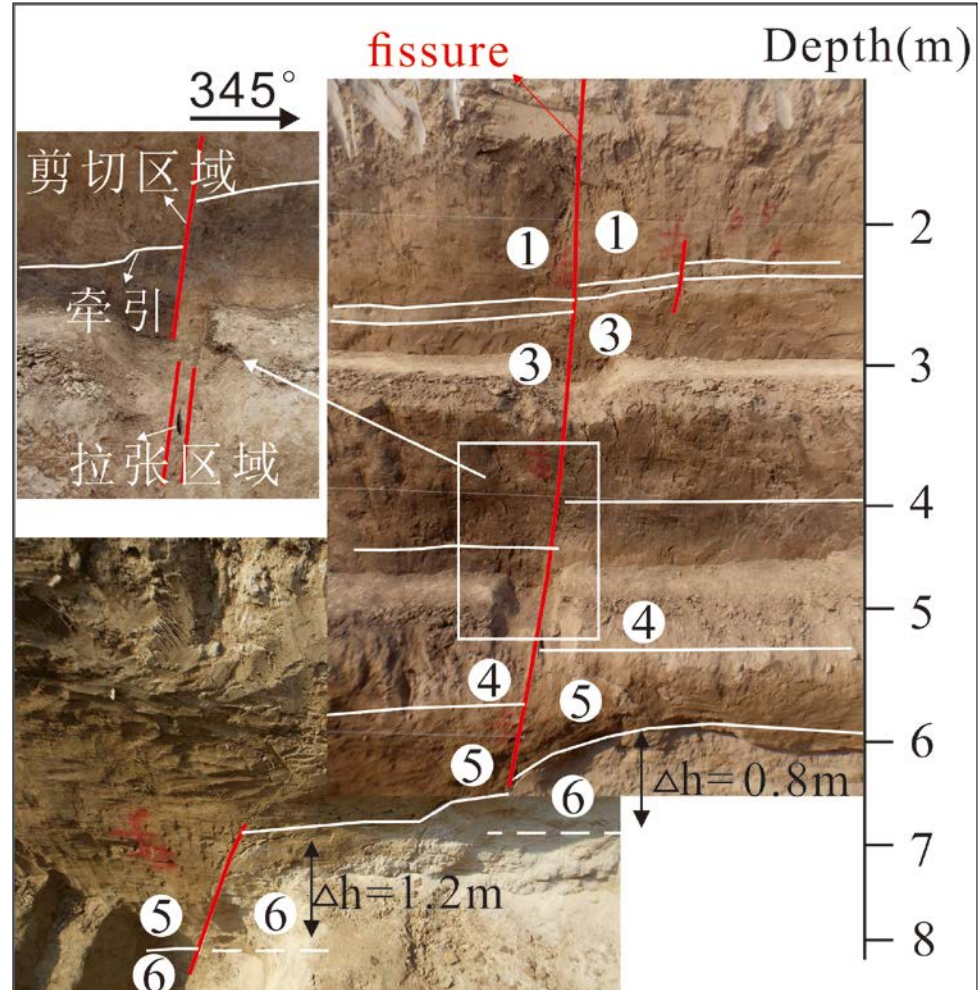
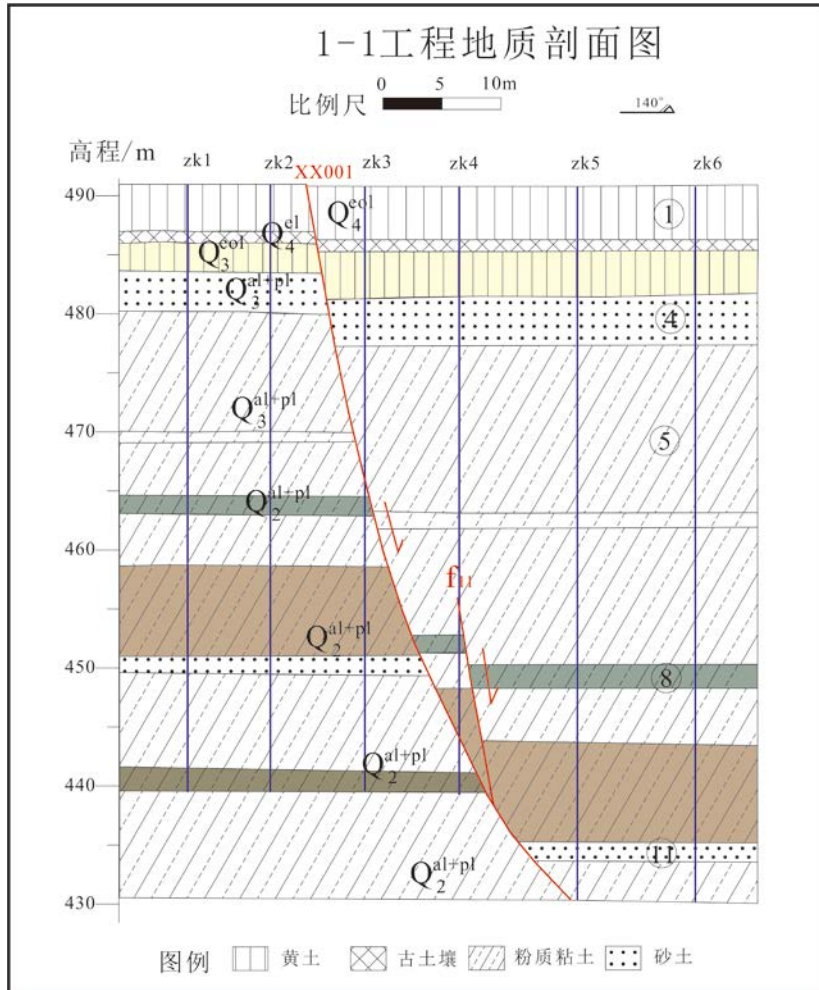


Deep



# Main achievement

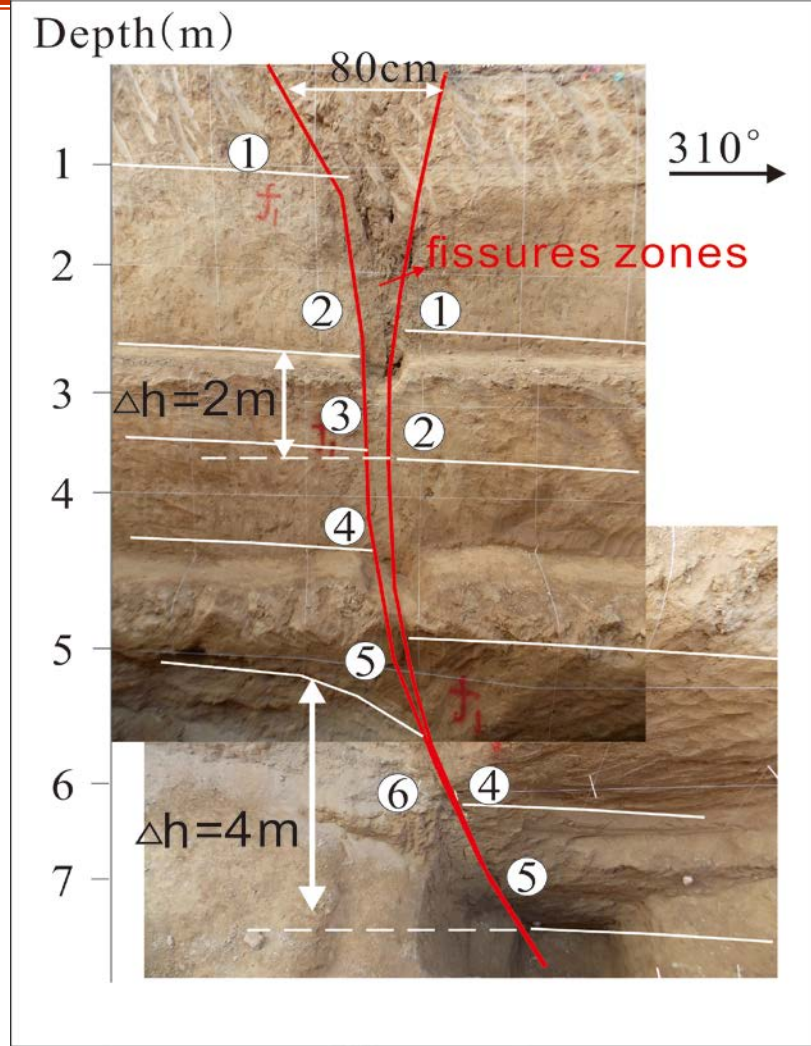
The dislocation increases with depth and possesses the syn-sedimentary characteristic





# Main achievement

**Earth fissure in shallow is major tensile fracture and in deep is major shear fracture.**





# Main achievement

The dislocation of Gaoliying earth fissure, Beijing is 0.3m in earth surface and 2.9m in Upper Pleistocene.



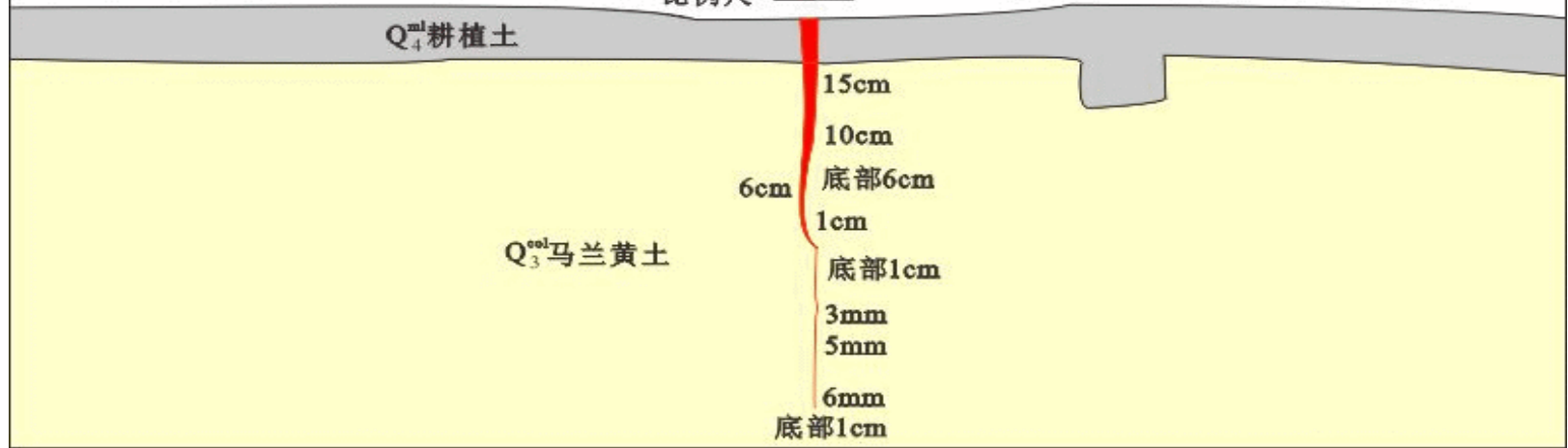
# Main achievement

The atectonic earth fissure is main tensile fissure, and the developing depth is within 10m.

陕西省咸阳市秦都区马庄镇贾村地裂缝探槽剖面图

351°

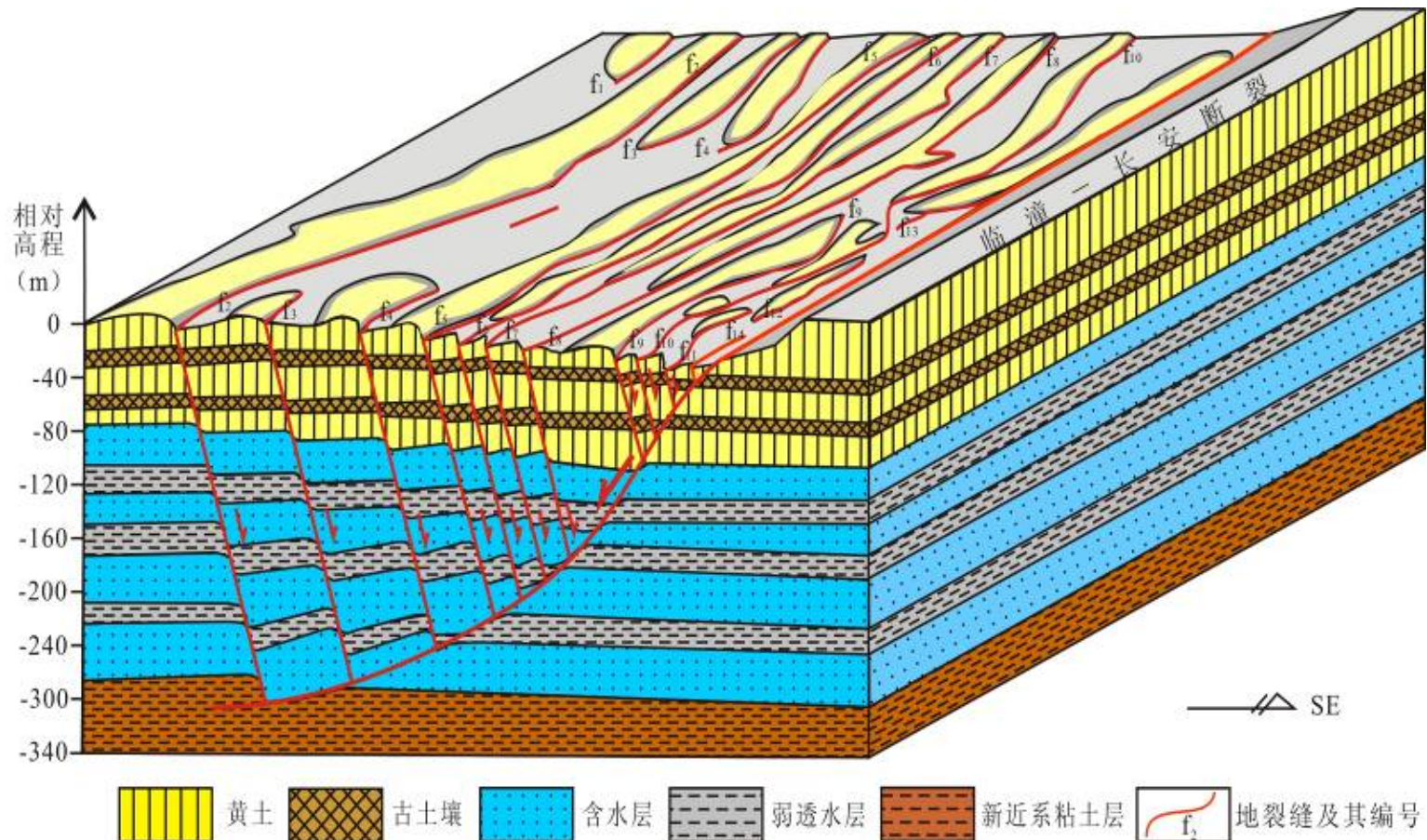
比例尺 0 0.5 1m





# Main achievement

**Xi'an earth fissures: approximately parallel, flickering, equal occurrence, synchronous activity.**



**The stereochemical structure of Xi'an earth fissure**



# Main achievement

The cross-section of fissure affects the protection distance and structure of building .

